AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): A method of measuring a three-dimensional surface shape of a workpiece (W) by moving a three-dimensional measuring unit mounted on a robot to trace a surface of said workpiece (W), comprising the steps of:

setting and recording block data representing a measuring operation to cause said three-dimensional measuring unit to trace a predetermined area;

setting a length (U) and/or a height (h) of said workpiece (W);

selecting one of a plurality of basic shape types which is similar to a shape of said workpiece (W);

duplicating said block data such that a hypothetical block representing said block data covers an area to be measured of the surface of said workpiece (W) which is projected onto a hypothetical space, depending on the selected basic shape type and the length (U) and/or the height (h) of said workpiece (W);

measuring the surface shape of said workpiece (W) based on the duplicated block data; and

recording positional data representing the measured surface shape of said workpiece.

Claim 2 (previously presented): A method according to claim 1, wherein said three-dimensional measuring unit includes a displacement gage for measuring a distance up to said workpiece (W), and said robot is operated based on the distance measured by said displacement gage to move said three-dimensional measuring unit toward or away from said workpiece (W) to keep said three-dimensional measuring unit in a measurable range from said workpiece (W) while the measuring operation is performed.

Claim 3 (previously presented): A method according to claim 1, wherein said block data comprises data representing a motion pattern for reciprocally moving said three-dimensional measuring unit while displacing said three-dimensional measuring unit horizontally by a detection width (D).

Claim 4 (previously presented): A method according to claim 1, wherein in said duplicating step, said block data is deformed and duplicated.

Claim 5 (previously presented): A method according to claim 1, wherein in said measuring step, after said surface shape is measured based on predetermined block data and when said surface shape is measured based on next block data, a base of said robot is moved in positional alignment with the next block data.

Claim 6 (previously presented): A method according to claim 5, wherein said base is placed on a movable carriage, and said base is moved when said movable carriage is moved.

Claim 7 (previously presented): A method of measuring a three-dimensional surface shape of a workpiece (W) by moving a three-dimensional measuring unit mounted on a robot to trace a surface shape of the workpiece (W), comprising the steps of:

setting a basic path for moving said three-dimensional measuring unit a predetermined distance;

duplicating said basic path a plurality of times at predetermined intervals to set block data (120) representing a measuring operation to cause said three-dimensional measuring unit (12) to trace the surface shape of said workpiece (W); and

recording positional data representing the traced surface shape of said workpiece.

Claim 8 (previously presented): An apparatus for measuring a three-dimensional surface shape of a workpiece (W) by moving a three-dimensional measuring unit mounted on a robot to trace a surface of said workpiece (W), comprising:

a block data setting recorder for setting and recording block data representing a measuring operation to cause said three-dimensional measuring unit to trace a predetermined area;

a data input unit for setting a length (U) and/or a height (h) of said workpiece (W);

a basic shape selector for selecting one of a plurality of basic shape types which is similar to a shape of said workpiece (W);

a block data duplicator for duplicating said block data such that a hypothetical block representing said block data covers an area to be measured of the surface of said workpiece (W) which is projected onto a hypothetical space, depending on the selected basic shape type and the length (U) and/or the height (h) of said workpiece (W); and

a measurement performing unit for measuring the surface shape of said workpiece (W) based on the duplicated block data.

Claim 9 (previously presented): An apparatus according to claim 8, wherein said three-dimensional measuring unit includes a displacement gage for measuring a distance up to said workpiece (W), and said robot is operated based on the distance measured by said displacement gage to move said three-dimensional measuring unit toward or away from said workpiece (W) to keep said three-dimensional measuring unit in a measurable range from said workpiece (W) while the measuring operation is performed.

Claim 10 (previously presented): An apparatus according to claim 8, wherein said block data comprises data representing a motion pattern for reciprocally moving said three-dimensional measuring unit while displacing said three-dimensional measuring unit horizontally by a detection width (D).

Claim 11 (previously presented): An apparatus according to claim 8, wherein said block data duplicator duplicates said block data while deforming said block data.

Claim 12 (previously presented): An apparatus according to claim 8, wherein after said measurement performing unit measures said surface shape based on predetermined block data and when said measurement performing unit measures said surface shape based on next block data, a base of said robot is moved in positional alignment with the next block data.

Claim 13 (previously presented): An apparatus according to claim 12, wherein said base is placed on a movable carriage, and said base is moved when said movable carriage is moved.

Claims 14 - 20 (Canceled)